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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,090	09/19/2003	Robert C. Lam	02074/02091	8977

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EXAMINER	
CHOI, PETER Y	
ART UNIT	**PAPER NUMBER**
1771	

MAIL DATE	DELIVERY MODE
07/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/666,090	LAM ET AL.	
	Examiner	Art Unit	
	Peter Y. Choi	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-10,12-17 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7-10,12-17 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-3, 7-10, 12-17, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims recite "geometrically symmetrically shaped friction modifying particles," "symmetrically shaped silica particles," "symmetrically shaped particles," "symmetrically shaped diatomaceous earth particles," "symmetrically shaped diatomaceous earth," and "substantially flat disc shape," disclosing particles by their properties and neither disclosing particles suitable for the purpose nor a process by which one of ordinary skill in the art would be able to make the claimed geometrically symmetrically shaped friction modifying particles.

Response to Arguments

3. Applicants' arguments filed April 3, 2007 have been fully considered but they are not persuasive. Applicants' argue that the disclosure, particularly Figures 1a, 1b, 2b, 2c, 2d and page 18 of the specification enables the claims. The figures graphically illustrate the geometrically symmetrically shaped particles by showing the shape of the particles. However, the aforementioned Figures and page 18 of the specification do not teach geometrically

symmetrically shaped particles suitable for the purpose of practicing Applicants' claimed invention nor a process by which one of ordinary skill in the art would be able to make the claimed geometrically symmetrically shaped friction modifying particles.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 7-10, 12-17, and 28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1203897 to Lam.

Regarding claims 1-3, 7, 8, 10, 12, 14, 15, and 17, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises a mixture of carbon particles and

symmetrically shaped silica particles, the carbon and silica friction modifying particles being present at about 0.2 to about 80%, by weight, based on the weight of the primary layer material, and wherein the secondary layer comprises about 20% to about 35% by weight, of symmetrically shaped silica particles, and about 65% to about 80%, by weight, carbon particles, based on the total weight of the friction modifying particles (see entire document including paragraphs 0001, 0024, 0025, 0059, 0060, claims 1-3).

Regarding claims 1-3, 7-10, 12-17, and 28, although the reference does not appear to explicitly teach that the shaped friction modifying particles are geometrically symmetrically shaped, CELITE, disclosed in the Lam reference, typically has a symmetrical shape.

Regarding claims 2 and 3, the primary layer material comprises fabric materials, woven and/or nonwoven materials (paragraph 0071).

Regarding clam 3, while Lam does not appear to teach that the primary layer material has a surface smoothness in the range of from about 0.02 mm Ra to about 0.2 mm Ra which smooth surface provides the friction material with consistent anti-shudder and coefficient of friction characteristics, the claimed properties are deemed to be inherent to the structure in the prior art since the Lam reference teaches an invention with a similar structural and chemical composition as the claimed invention and teaches the anti-shudder and coefficient of friction characteristics (paragraphs 0002, 0049). Properties are the same when the structure and composition are the same. The burden is on the Applicants to prove otherwise.

Regarding claims 7 and 8, the friction modifying particles cover about 3% to about 90% of the surface area of the primary layer material or substantially cover the outer surface of the primary layer material (paragraph 0059).

Regarding claim 9, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises a mixture of symmetrically shaped diatomaceous earth particles and fully carbonized carbon particles or partially carbonized carbon particles, and mixtures thereof, and wherein the secondary layer comprises about 20% to about 35% by weight, of symmetrically shaped silica particles, and about 65% to about 80%, by weight, carbon particles, based on the total weight of the friction modifying particles (see entire document including paragraphs 0001, 0024, 0025, 0059, 0060, claims 1-3).

Regarding claim 10, the friction modifying particles comprise about 0.2% to about 50%, by weight, of friction modifying particles, based on the weight of the primary layer material (paragraph 0059).

Regarding claim 12, the friction modifying particle size ranges from about 0.05 to about 20 microns (paragraph 0058).

Regarding claim 13, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically

symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises about 20% to about 35% by weight, of symmetrically shaped silica particles, based on the total weight of the friction modifying particles, and wherein the friction modifying particles comprise symmetrically shaped diatomaceous earth (see entire document including paragraphs 0001, 0024, 0025, 0059, 0060, claims 1-3).

Regarding claims 14, 15 and 17, the friction material is impregnated with a phenolic resin or a modified phenolic resin or an epoxy phenolic resin, comprising about 40 to about 120% resin, by weight (paragraph 0040, 0043).

Regarding claim 16, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises 20% to 35%, by weight, of symmetrically shaped silica particles, based on the total weight of the friction modifying particles, and wherein the friction material is impregnated with a mixture of a phenolic resin and a silicone resin wherein the amount of silicone resin in the mixture ranges from approximately 5 to approximately 80%, by weight, based on the weight of the mixture, and optionally, wherein the phenolic resin is present in a solvent material and the silicone resin is present in a solvent material which is compatible with the solvent material of the phenolic resin (see entire document including paragraphs 0001, 0024, 0025, 0040, 0041, 0046, 0048, 0059, 0060, claims 1-3).

Regarding claim 28, Lam discloses a friction material comprising a base material impregnated with at least one curable resin, the base material comprising a porous primary layer comprising a fibrous base material, and a secondary layer comprising geometrically symmetrically shaped friction modifying silica particles at least partially covering an outer surface of the fibrous base material, the material of the primary layer holding the geometrically symmetrically shaped friction modifying particles on the surface of the porous primary layer, wherein the secondary layer comprises 20% to 35%, by weight, of symmetrically shaped silica particles, based on the total weight of the friction modifying particles (see entire document including paragraphs 0001, 0024, 0025, 0059, 0060, claims 1-3). Lam does not appear to specifically disclose that the geometrically symmetrically shaped silica friction modifying particles have a substantially flat disc shape. However, the shape limitation is deemed to be inherent to the friction modifying particles.

In the event it is shown that the Lam reference does not disclose the claimed invention with sufficient specificity, the invention is obvious because the Lam reference discloses the claimed constituents and discloses that they may be used in combination.

Response to Arguments

6. Applicants' arguments filed April 3, 2007, have been fully considered but they are not persuasive. Applicants argue that Lam does not disclose or suggest a limitation wherein the secondary layer comprises about 20% to about 35%, by weight, of symmetrically shaped silica particles, and about 65% to about 80%, by weight carbon particles, based on the total weight of the friction modifying particle(s). Examiner respectfully disagrees. Paragraphs 0025, 0059 and

0060 of Lam discloses and suggest that the amount of friction modifying particles can comprise from 0.2 to about 20% or about 2 to about 15%, by weight, of the fibrous base material. Further, the secondary layer may comprise silica particles such as CELITE friction modifying particles, and partial and/or fully carbonized carbon particles, wherein the silica friction modifying particles may comprise about 2 to about 5% by weight, based on the weight of the fibrous base material. Support for these limitations is disclosed in paragraphs 0025, 0059, 0060, 0068, and claims 1-3 of Lam.

Claim 3 recites that about 2% to about 5%, by weight, of the friction modifying particles of the secondary layer of claim 1 comprises silica friction modifying particles based on the weight of the fibrous base material. The secondary layer may comprise about 0.2 to about 20% or about 2 to about 15% friction modifying particles by weight based on the weight of the fibrous base material. Silica friction modifying particles and carbon particles may comprise the secondary layer and about 2% to about 5% by weight of the secondary layer may comprise silica friction modifying particles. Therefore, Lam discloses and suggests that, at a minimum, about 10% to about 13% of the secondary layer may comprise non-silica friction modifying particles, which in turn may comprise carbon particles. Based on this disclosure and suggestion, silica friction modifying particles may comprise about 17% to about 25%, by weight, based on the *total weight* of the *friction modifying particles*, and carbon particles may comprise about 75% to about 83%, by weight, based on the *total weight* of the *friction modifying particles*. Additionally, it would have been obvious to one of ordinary skill in the friction modifying art to optimize the amount of silica friction modifying particles and carbon particles comprising the secondary layer since it has been held that where general conditions of a claim are disclosed in

the prior art, discovering the optimum or workable ranges involves only routine skill in the art and Lam clearly discloses or suggests the claimed weight limitations.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571) 272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter Y. Choi
June 18, 2007

ANDREW PIZIALI
PRIMARY EXAMINER